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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,712	01/18/2002	Donald R. Glynn	DWE/GLYNN2	6321

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EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,712

Applicant(s)

GLYNN, DONALD R.

Examiner

Krishnan S Menon

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 12 and 14-20 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trulson (US 3,977,967) in view of Haney (US 6,099,733)

Trulson teaches an apparatus having a cross flow filter (10-fig 1, 32-fig 2) that permits substantially oil-free water (abstract), pumping means (14,16-fig 1) to circulate (22,24,26-fig 1) and to scour the membrane surface, permeate accumulation (38-fig 2) and drain means (28-fig 2) to disposal of permeate, so that in use, concentration of contaminated mixture is progressively increased (in lines 22-24-26), as in claim 12. Instant claims add further limitations, which Trulson does not teach but Haney teaches, as follows: Claim 12: plurality of cleaning solution storage tanks (Haney fig 1 – tanks 'L', col 6 lines 18-23), electronic (solenoid) valve and manifold means for draining and back-flushing (Haney Fig 1, 2A and 2B, abstract).

Re the plurality of cleaning solution tanks, Haney teaches only one tank in the permeate side in back flush mode, and water is the cleaning solution (see 24, 25 -fig 2A), but teaches a plurality of cleaning solution tanks 'L' in Fig 1. It would be obvious to

one of ordinary skill in the art at the time of invention to use the teaching of Fig 1 in the teaching of Fig 2 for additional cleaning solutions in back-flush mode, if necessary, to clean the membrane of the apparatus as taught by Trulson in view of Haney because the Trulson membrane may not withstand high inverse pressure required in the Haney fig 2 cleaning, and therefore, a cleaning chemical could be used instead (see Haney col 31 lines 9-32 and col 6 lines 10-23)

Frequency of cleaning in claim 12 is part of the intended use (A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)) (Also see Haney col 5 lines 5-10)

Claims 14 and 15: Trulson teaches the module with a central tubular membrane (32), an outer housing (fig 2), end fittings, contaminated liquid flowing in the tube as in claim 14, O ring seals as in claim 15 (46 fig 3, col 10 lines 50-55),

2. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over over Trulson (US 3,977,967) in view of Haney (US 6,099,733) as in claim 12 above and further in view of Boulter (US 5,911,884).

Claims 17 and 19: computerized and control means: Haney figures, col 15 lines 43-49. Claim 18: two processing loops in back-to back relation and pivot means to enable reversal of modules for access for servicing: Haney teaches means for switching and sequencing operations for various forward and backward flows for

Art Unit: 1723

operation and cleaning membranes in col 14 lines 46-67. It would be obvious to one of ordinary skill in the art at the time of invention to use the teachings of Haney in the teaching of Trulson for effective cleaning of the membranes and automated operation of the system. Trulson in view of Haney does not teach cabinet mounting. Boulter teaches cabinet mounting of a water treatment system (see figures and abstract). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Boulter in the teaching of Trulson in view of Haney to mount the system in a cabinet for weather protection and/or for point of use installation.

3. Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trulson (US 3,977,967) in view of Haney (733) as in claim 12 above and further in view of Yunoki (US 5,354,466).

Claims 16 and 20 add further limitations of a permeate accumulation means connected with compressed air for back-flushing, which is not taught by Trulson. Yunoki teaches such a back flush system (see fig 1). Claim 20 adds further limitation of minimal volume and a cleaning liquid (see Yunoki col 1 lines 38-48 and col 4 lines 6-14). It would be obvious to one of ordinary skill in the art at the time of invention to use the teachings of Yunoki in the teaching of Trulson in view of Haney to provide a simplified back-flush system to clean the membrane (Yunoki – abstract).

Response to Arguments

Applicant's arguments filed 12/5/03 have been fully considered but they are not persuasive.

Applicant's argument that Trulson teaches an inorganic membrane vulnerable to back flush and takes 24 hrs to deposit: Trulson teaches a carbon ultrafiltration membrane on which a metal oxide layer is coated on. The carbon membrane itself is an ultrafiltration membrane with pore size in the range specified by the applicant (see Trulson col 5 lines 12-64) and Trulson does not specifically state that his membrane is vulnerable to back-flush. There is nothing in the reference that indicate that cleaning by back-flush is detrimental, Trulson does not teach that the metal oxide coating process takes over 24 hrs, and one could use the back flush technique to clean the membrane even if the metal oxide coating comes off – a fresh metal oxide coating can be provided after cleaning, if needed. It may be noted that Trulson teaches using high flow velocity for shearing away accumulated residue in col 8 lines 45-50, which indicate that the metal oxide coating is not so vulnerable.

Applicant's argument re Haney Ref: (1) "... nowhere is oil or petroleum products referred to [by Haney]": please look in the abstract and col 13 lines 5-15. (2) Haney does not teach ultrafiltration: Haney ref is used to show back flush with cleaning solution (see discussion on conventional membrane systems as indicated in the rejection). (3) Haney teaches reverse osmosis, which is a totally different filed: Haney teaches oily wastewater purification – therefore, it is an analogous filed. (4) Haney discards the fouled membrane and substitutes with new membrane: Examiner could not find support for this argument in Haney ref. On the contrary, Haney teaches using back-flush to

Art Unit: 1723

clean the membrane (see Haney col 31 lines 9-32). (5) present invention does not rely on backwash with permeate: backwash is process, what claimed is an apparatus.

Argument re Yunoki ref that Yunoki teaches only permeate backwash: again, backwash is process and intended use (In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) what claimed is an apparatus. Yunoki ref is used to show the use of air-pressured backwash system having small volume.

Conclusion

This action is made non-final because an element of claim 17 (cabinet mounting) was missed in the first action, which necessitated new grounds for rejection.

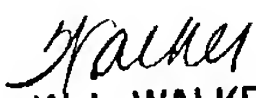
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner


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